Chapter Five
AIRPORT PLANS

AIRPORT PLANS

The Airport "master plan" has evolved through the analytic efforts described in the previous chapters. These assessed future aviation demand, established airside and landside facility needs, and evaluated options for the future development of the airside and landside facilities. The planning process, thus far, has included the presentation of four working papers (representing the first four chapters of the master plan) to the Planning Advisory Committee (PAC), Sierra Vista Municipal Airport staff, and Libby Army Airfield/Fort Huachuca advisory personnel.

DISCUSSION OF ALTERNATIVES

During the third PAC meeting, at which the Airport Alternatives (Chapter Four) working paper was presented, the airport users introduced their own landside design proposal (Users Alternative). Their alternative combined elements from the various landside alternatives, creating a new layout. The Users Alternative stressed development of the general aviation use of the Airport and included a recommendation to convert the existing commercial service terminal to a general aviation terminal facility and construct a new commercial terminal further to the west. The 20-year forecast for the Airport's commercial service activity, however, does not support this option. The existing commercial terminal facility was determined more than adequate based on the Facility Requirements analysis conducted in Chapter Three of this document. As a result, ADOT and FAA would most likely not financially support such a proposal.

The Users Alternative also proposed a large FBO/maintenance facility for the area immediately west of the existing

commercial service terminal. The users felt that a more visible and convenient FBO facility would serve to increase business/corporate and transient general aviation use of the Airport. For security purposes, however, it is desirable to maintain separation between the commercial and general aviation areas by locating a general aviation terminal and any future FBO sites along the proposed new access road within the property acquisition area.

At the PAC meeting, the Airport users expressed additional concerns about the potential visibility of the proposed aircraft conversion facility from State Route 90. The users recommended locating this facility more to the center of the acquisition area so that large aircraft stored at the facility would not be visible from the highway.

Subsequent to the PAC meeting, additional comments were received from the City and representatives of Libby Army Airfield. These items largely pertained to the airfield. The Army advised that the pavement strength at the intersection of Runway 12-30 with Taxiway Delta is insufficient to accommodate large aircraft and that this would need to be addressed prior to using the proposed parallel Taxiway J in this area.

The Army also expressed an interest in improvements to Runway 12-30 to resolve landing conflicts with Runway 8-26. The purpose of the improvements would be to allow simultaneous use of both runways. Two alternatives were examined. The first examined the use of land and hold short operations (LAHSO) procedures so that aircraft would come to a full stop prior to the Runway 8-26 intersection. According to *FAA Order 7110.118, Land and Hold Short Operations*, the Beech 1900 requires a LAHSO available landing distance minimum of 6,400 feet. Without any runway extension, the available landing distance for Runway 12-30 is only 2,450 feet. Implementing LAHSO procedures are complicated and involve many steps, as well as agency approvals. In addition, airlines are reluctant to agree to LAHSO procedures due to safety concerns. The second option for addressing the Army's concerns would be to extend Runway 12 by 4,225 feet to the northwest and relocate the Runway 30 threshold 1,000 feet northwest of the runway intersection. Given that only four percent (4%) of total operations occur on Runway 12-30, it is unlikely that FAA or ADOT would support either option at this time. Should aircraft delays reach greater levels, then the runway extension may be warranted.

The Army also questioned whether one mile visibility minimums could be achieved to Runway 3-21. Given the limited use of this runway (approximately one percent of total operations), a published approach is not justified. Consideration of a GPS approach to this runway has, therefore, been eliminated from the final plan.

Finally, the Army questioned the need for MALSR lighting to Runway 26 as the facility operates under IFR condition less than one percent of the year. The MALSR, however, remains in the plan based on ADOT's *Navigational Aids and Aviation Services Special*

Study (November 1998) which found that "Installation of MALSR to achieve ½ mile visibility coverage is not economically justified. However, it is warranted to meet system area coverage in eastern Cochise and southern Greenlee counties." The ODALS previously recommended for Runway 12-30 have, however, been removed from the plans.

Additional comments by the City recommended that the final design of the landside area enhance the efficiency and use of existing facilities and reduced construction costs as much as possible. This included shifting the aircraft conversion facility to the center of the acquisition area, redesigning the airport access road to separate land uses in the acquisition area, providing a single, wide taxiway connection between the existing GA apron and the new GA apron, and minimizing the northeasterly taxiway extensions. The City also identified a need to expand the helipad/helicopter landing area.

The final layout plans for Sierra Vista Municipal Airport were designed in consideration of the comments of these individuals and associations, as well as other comments received during the PAC meeting.

AIRPORT DESIGN STANDARDS

As a joint use facility, airfield development at Sierra Vista Municipal Airport/Libby Army Airfield is subject to military design and safety standards as prescribed in *Air Force Manual 32-1123(I)/ Army Technical Manual TM 5-803-7, Airfield and Heliport Planning and Design* (Revised 5/1/1999). Additionally, FAA airfield design standards also affect the Airport, and are found in *FAA Advisory Circular (AC) 150/ 5300-13, Airport Design*. Both the military and FAA design standards are based on the performance and physical characteristics of the most demanding type of aircraft currently using or expected to use the Airport. The planning criteria (both military and FAA) governing Sierra Vista Municipal Airport/Libby Army Airfield is presented in **Table 5A**.

As a result of the joint use status, military standards govern the majority of runway and taxiway design at the Airport. This includes elements such as runway class; runway widths and lengths; taxiway widths; runway/ taxiway separation, and runway clear zones, etc. At the Airport, each runway along with their related taxiway system has been designed according to a specific military (DOD) runway classification. Additionally, each of these classifications comparatively corresponds to a FAA specified Airport Reference Code (ARC). Where military and civil aviation standards differ, military standards supersede civilian standards. Those areas of the Airport which are designated for civilian use only, however, are designed specifically to FAA criteria.

TABLE 5A
Airport Planning and Design Standards

	Runway 8-26	Runway 12-30	Runway 3-21
Planning/Design Standard			
Runways			
Military Class [1]	Class B	Class A	Class A
Airport Reference Code [2]	E-V	C-III	B-II
Length	12,000'	5,365'	4,300'
Width	150'	100'	75'
Pavement Strength	640 DDT	172 DDT	Undetermined
Runway Safety Area			
Width	580'	500	150'
Length Beyond Runway End	1,000'	1,000'	300'
Runway Object Free Area [2]			
Width	800'	800'	500'
Length Beyond Runway End	1,000'	1,000'	300'
Runway Lateral Clearance [1]			
(½ Primary Surface)	1,000'	500'	500'
Runway Centerline to Taxiway Centerline [1]	1,034'	520'	520'
Runway Clear Zones (Each Runway End) [1]			
Width	3,000'	1,000'	1,000'
Length	3,000'	3,000'	3,000'
Approach Slope	50:1	40:1	40:1
Taxiways			
Width	75'[1]	50'[2]	40'[1]
Strength	640 DDT	172 DDT	12.5 SWL

Notes: Pavement strengths are measured in thousands of pounds.
DDT = Double Dual-Tandem Wheel Loading; SWL = Single Wheel Loading.

Sources: [1] Air Force Manual 32-1123(I)/Army Technical Manual TM 5-803-7, *Airfield and Heliport Planning and Design* (Revised 5/1/1999).
[2] *FAA Advisory Circular (AC) 150/ 5300-13, Airport Design.*

RECOMMENDED MASTER PLAN CONCEPT

The recommended master plan concept provides for anticipated civilian aviation facility needs for Sierra Vista and the surrounding region throughout the 20-year planning horizon. The following sections provide a brief discussion of the major improvements proposed for Sierra Vista Municipal Airport/Libby Army Airfield throughout the planning period.

AIRSIDE RECOMMENDATIONS

Airside improvement recommendations at the Airport are relatively limited, and focus primarily on taxiway, visual navigational aids, and airfield lighting improvements. These improvements will serve to enhance both the capacity and safety of civilian and military operations thus enhancing the overall efficiency and value of the Airport. The following subsections address the recommended improvements as they relate to the runway/taxiway system at Sierra Vista Municipal Airport/Libby Army Airfield.

Runways

As previously stated, both military and FAA design standards are based on the performance and physical characteristics of the most demanding type of aircraft currently using or expected to use the Airport or a particular runway. Military runway classifications are Class A, which is applied to runways intended for primarily small light aircraft (i.e., C-1, T-34, UV-18, DASH-7 and DASH-8, etc.), and Class B, for high performance (i.e., F-15, F-16, A-10, etc.) and large heavy aircraft (i.e., C-130, C-141, KC-10, etc.). The FAA uses criteria based on aircraft approach speed (five categories) and wingspan (six categories) to determine design standards. The resulting combined alpha-numeric FAA classification (i.e., A-I, B-II, E-IV) is known as an Airport Reference Code (ARC).

Sierra Vista Municipal Airport/Libby Army Airfield is served by three runways. Runway 8-26 (Class B military/FAA ARC E-V) is the primary runway serving both military and civilian aircraft while Runways 12-30 (Class A military/FAA ARC C-III) and 3-21 (Class A military/FAA ARC B-II) serve as crosswind runways. This triangular runway configuration is the typical layout of most military airfields. From a civilian aviation perspective, the airfield capacity analysis in **Chapter Three** analyzed runway elements at the Airport for each runway individually as well as collectively. These elements included runway orientation, runway length, runway width, and runway pavement strength. When examined collectively the existing three runway configuration was determined to be sufficient to serve the Airport through the long term planning horizon.

Runway 8-26 - is oriented east to west and is 12,000 feet long by 150 feet in width. Pavement strength ratings for this runway are 75,000 pounds single wheel loading (SWL), 150,000 pounds dual wheel loading (DWL), 300,000 pounds dual tandem wheel loading (DT), and 640,000 pounds double dual tandem wheel loading (DDT). Runway 26 is currently served by a CAT I ILS (instrument landing system) approach with 200-foot decision height, 3/4-mile visibility minimums. This system consists of a localizer antenna and glide slope antenna.

The recommended master plan concept proposes no change to the runway's length, width, or pavement strength. It does recommend the installation of a MALSR approach light system to Runway 26 in order to reduce the approach minimums to 200-foot, ½-mile

visibility, consistent with the ADOT *Navigational Aids and Aviation Special Services Study* released in March 1999. Additionally, the establishment of supplemental non-precision GPS approaches are also recommended for Runway 8-26. Finally, it is recommended that the visual approach slope indicator system (VASI-4) serving Runway 8-26 be replaced by precision approach path indicators (PAPI-4). As discussed in **Chapter Three**, the FAA has recommended nationwide that all VASI systems be eventually replaced by the more sophisticated PAPI systems.

Runway 12-30 - Is oriented northwest-southeast. This runway is 5,365 feet in length by 100 feet in width. The published pavement strength ratings for Runway 12-30 are 46,000 lbs. SWL; 106,000 lbs. DWL; 137,000 lbs. DTWL; and 172,000 lbs. DDTWL.

The existing Runway12-30/Taxiway D intersection does not have the required pavement strength to accommodate large aircraft. Currently, jet operations are not allowed on Runway 12-30 due to these weight bearing limitations and the potential FOD (Foreign Object Damage) hazards for aircraft using the runway. In the future, Type ADG V (B-747) aircraft are expected to use Taxiway D to move to and from the proposed aircraft conversion facility. The existing asphalt, therefore, will need to be removed and replaced with reinforced concrete (640,000 pounds DDTWL) capable of supporting Type ADG V aircraft. No additional airside-related improvements to Runway 12-30 are proposed.

Runway 3-21 - Which is oriented northeast to southwest, is 4,300 feet in length by 75 feet in width. No physical improvements (e.g., runway length, width, etc.) are recommended to this runway at this time. As of the date of this publication, there is no published weight bearing capacity for this runway. For future planning purposes, **Chapter Three** recommends that the pavement strength rating for Runway 3-21 be determined.

NAVAID enhancements recommended for Runway 3-21 include the installation of PAPI-2s and runway end identification lights (REILs) to each end of the runway. PAPIs assist pilots with visual guidance information during landings to the runway while the REILs provide rapid and positive visual identification of the approach end of the runway.

Taxiways and Taxilanes

The purpose of taxiways and taxilanes are to facilitate aircraft ground movements to and from the runway system. Typically, taxiways are directly related to the runway system while taxilanes are more associated with transitioning aircraft to or from their parking/storage areas to the taxiway and runway system.

A well designed, efficient taxiway system not only improves airfield safety but contributes to optimizing the capacity of the airfield by minimizing delays caused by ground traffic congestion such as the necessity of

taxiing aircraft to cross active runways. To that effect, the taxiway improvements recommended for Sierra Vista Municipal Airport/Libby Army Airfield focus on separating military and civilian operations at the airport and eliminating civilian aircraft crossings of active runways. Meanwhile, the proposed taxilane improvements are designed to service the planned development within the 203-acre property acquisition area.

Chapter Three outlined the proposed improvements remaining to be completed from the 1995 Airport Master Plan. These improvements include the construction of the north side parallel taxiway to Runway 8-26 as well as connector taxiways A1 and B1. The construction of the new parallel taxiway requires the realignment of Taxiway J to ensure an efficient and smooth intersection (transition) between the two taxiways. As noted in **Chapter Four**, these taxiway improvements are presently in the design and engineering phase. These improvements are slated for completion within the Stage II planning horizon (years one through five) which is described in greater detail in the next chapter.

Based on a combination of factors including DOD standards, terrain restrictions, and the Army's request for additional separation, the proposed northside parallel taxiway is to be located 1,034 feet (centerline-to-centerline) north of Runway 8-26. Additional military standards followed in the design of this and the other taxiways described above include a taxiway width of 75 feet. This taxiway will be constructed in two phases. Phase I involves constructing approximately 1,570 feet of taxiway between Taxiway D and Runway 3-21. This first phase will be accomplished in conjunction with the realignment of Taxiway J. Phase II will extend the parallel taxiway approximately 6,815 feet to the Runway 8 end. Taxiways A and B will be extended north from the runway to connect to the new parallel taxiway. The recommended pavement strength rating of each of these taxiways is equivalent to that of Runway 8-26. The DOD standards employed cover a Class B runway. Corresponding FAA standards to military Class B would be Aircraft Design Group (ADG) IV.

As illustrated, the proposed north side parallel Taxiway J falls just outside of the existing joint-use area (Parcel D of 1982 deed). Prior to development of the taxiway, the City will need to either: (1) amend Parcel D or (2) process the project through a "donation" process, as defined by the Army, addressing maintenance in a separate agreement. This would need to be resolved in consultation with the Army.

The proposed aircraft conversion facility, air cargo facility, and federal agencies development in the 203-acre acquisition area requires the construction of an ADG-IV (B-747) taxilane. This taxilane will extend approximately 1,380 feet northeast from the existing end of Taxiway D into the development area. From there, it intersects a second taxilane serving those large aircraft-related businesses located east of the wash. Crossing the wash requires constructing a taxilane bridge capable of supporting these large

aircraft. A medium amount of earthwork will be required to construct these taxilanes as FAA design standards for large aircraft specify one percent (1%) maximum pavement gradients.

To serve the proposed general aviation development area north of Airport Avenue a 158-foot wide, two-way taxilane will be constructed. This taxilane, to be constructed to ARC B-II standards, will necessitate closing a portion of Airport Avenue. Access to the commercial service area will be provided by the new access road.

All physical improvements to the existing taxiways as well as new taxiway/taxilane construction is reflected on the ALP.

Currently, medium intensity taxiway lighting (MITL) is installed on all civilian taxiways at the airport. All new and/or realigned civilian use taxiways at the Airport are proposed to be equipped with medium intensity taxiway lighting (MITL), as well. Meanwhile, the southside parallel taxiway, which is used almost exclusively by the military, is equipped with reflectors only. Future upgrading of this taxiway with MITLs is reflected on the ALP. Sources for funding this upgrade to the southside taxiway are discussed in the next chapter.

Helipads

The existing helipad and helicopter parking area located south of the Civil Air Patrol (CAP) facilities currently consists of one landing pad and one parking pad. Future expansion plans for this area provides for two helicopter landing pads and three helicopter parking pads. These improvements, depicted on the ALP, will require relocating the existing CAP facilities to the new general aviation development area within the proposed property acquisition area.

In addition, two smaller helipads are to be located on Taxiway G just south of the existing general aviation aircraft parking apron. These helipads are limited to brief use for helicopters loading and unloading passengers, crew, and/or cargo. They are not available for long-term or overnight parking as they would interfere with the use of the taxiway. These are intended to serve as a short-term use until the 203 acres are acquired, the Civil Air Patrol is relocated, and the expanded helipad/helicopter parking area is constructed.

LANDSIDE RECOMMENDATIONS

Landside improvements comprise the bulk of the recommended improvements proposed for Sierra Vista Municipal Airport/Libby Army Airfield. This includes construction of single aircraft storage hangars (T-Hangars), additional conventional/corporate hangar positions, construction of additional general aviation apron and aircraft parking positions, new general aviation terminal facilities, and expanded automobile parking facilities. As outlined in **Chapter Four**, the majority of the landside improvements are planned for the proposed 203-acre acquisition area. As identified in

Chapter Six, acquisition of this additional acreage is critical to the Airport's ability to meet forecasted demand and to be financially self-sufficient. Of this 203 acres, approximately 60 acres are dedicated to general aviation development which is to be constructed in phases. Development regarding the remaining 143 acres is described under **Other Facilities Development** at the end of this section. To aid in the comparison of the recommended landside use with those evaluated in Chapter Four, **Exhibit 5A, Recommended Land Use Plan**, illustrates the final proposal. The acreages illustrated in this plan are consistent with those identified in the Final Environmental Assessment, as discussed in Chapter Four. Details of the overall landside improvements are as follows:

Aircraft Storage Hangar Facilities: Long-term plans include the construction of 32 T-Hangar aircraft storage positions (37,700 s.f.) and 42 conventional/corporate hangar positions (92,300 s.f.). These facilities are to be located in the new general aviation development area of the 203-acre acquisition area and are shown on the ALP and General Aviation Area Plan.

Additionally, four corporate jet-sized box hangars are identified to go on existing airport property and to serve an immediate demand. These hangars would each be 60 feet by 60 feet, sufficient to accommodate one corporate jet and/or a number of smaller general aviation aircraft.

General Aviation Apron/Aircraft Parking Positions: Within the proposed 203-acre acquisition area, a new general aviation apron is proposed with a minimum of eight aircraft parking positions: four itinerant positions (2,800 s.y.), two local-based aircraft positions (1,140 s.y.), and two jet or large aircraft positions (3,200 s.y.). These additional parking positions are co-located with the proposed FBO hangar(s) and general aviation terminal building. These improvements are reflected on the ALP, Terminal Area Plan, and General Aviation Area Plan.

Commercial Service Terminal Facilities: Expansion of the administrative and baggage claim areas of this facility are internal and, therefore, are not depicted on the ALP.

General Aviation Terminal Facilities: Currently, GA terminal facility functions are provided by the main FBO at the Airport. The facility requirements analysis conducted in **Chapter Three** identified the need to double the existing available space from 1,240 s.f. to 2,500 s.f. To accomplish this, the existing FBO facility will be converted to an air ambulance facility and a new general aviation terminal facility will be constructed in the general aviation development area of the proposed 203-acre property acquisition area. Details of these facilities are shown on the Terminal Area Plan and General Aviation Area Plan.

Airport Access Roads and Vehicle Parking: To access the 203-acre acquisition area, the existing entrance at Airport Avenue will be closed and a new airport access road constructed

approximately 960 feet to the northwest. This new road will bisect the southern half of the proposed acquisition area and connect to the existing commercial service terminal parking lot. From there, another new road will connect this existing parking lot and the area reserved for Federal Agencies development.

A north-to-south road will serve those facilities located on the middle and northern half of the property acquisition area as well as connect to the existing portion of Airport Avenue which is to be retained. In addition, the construction of the proposed two-way taxiway from the existing general aviation area to the future general aviation development area, will require closing a section of Airport Avenue. In the future, Airport Avenue will terminate at its entrance to the general aviation parking lot located directly north of the aircraft wash rack facility.

In **Chapter Two**, automobile parking requirements for the commercial service terminal were deemed to be more than adequate throughout the 20-year planning horizon.

Meanwhile, general aviation vehicle parking needs were considered insufficient for the long term period. Plans call for increasing the number of available GA parking spaces from 28 to 92 by the end of the long term planning horizon. These 64 new spaces would be divided between 11 new GA terminal parking spaces and 53 parking spaces designed to serve the proposed or existing GA hangar areas. For the short term, due to the over abundance of existing commercial service terminal parking spaces, it appears that a portion of the GA parking requirements could be met by designating some of the commercial service parking for the existing general aviation use areas. Additional GA automobile parking will be required to serve the proposed development within the 203-acre acquisition area as well. Improvements to the airport access roads and vehicle parking requirements are depicted on the ALP, Terminal Area Plan, and General Aviation Area Plan.

Other Facilities Development: An area is reserved along the southwest boundary of the proposed property acquisition area for use by federal agencies. This layout allows federal agencies to utilize the large aircraft parking apron located northwest of the existing commercial service terminal. Both the U.S. Border Patrol/ Immigration and Naturalization Service (INS) Air Operations, and the United States Forest Service (USFS) have expressed interest in locating on the civilian side of the Airport. The total area reserved for federal agencies use is approximately 15 acres.

Centrally located within the property acquisition area is the main aircraft conversion facility use area. Along with the proposed office-hangar complex this operation requires a considerable amount of large aircraft storage space. Additional storage area has been provided west of the wash. The combined total area for the aircraft conversion facilities is approximately 75 acres.

North of the aircraft conversion complex is an area reserved for air cargo

operations. This approximate 15-acre site offers both airfield and ground access.

Approximately nine acres has been reserved for assembly and fabrication businesses along the northeast boundary of the property acquisition area. Businesses located here are conveniently located near State Route 90 and do not require airfield (taxiway) access.

Located in the extreme north corner of the property acquisition area is the reserved wastewater treatment facility site. To take advantage of the natural grade, this facility is located at the lowest elevation of the property outside of the wash. The wastewater treatment facility site totals approximately six (6) acres.

Each of the above described areas are illustrated on the ALP and General Aviation Area Plan.

AIRPORT LAYOUT PLANS

The remainder of this chapter provides a brief description of the official layout drawings for the airport that will be submitted to the FAA and ADOT for review and approval. These plans, collectively referred to as the Airport Layout Plan Set, have been prepared to graphically depict the ultimate airfield layout, facility development, related airspace, runway approach surfaces, runway clear zones, and on-airport land uses and related noise contours. This set of plans include:

- Airport Layout Plan and Data Sheet
- Terminal Area Plan
- Airspace Plan
- Airspace Inner Surfaces Plan
- Approach Zones Profiles
- Clear Zones Plans
- On-Airport Land Use Plan

The airport layout plan set has been prepared on a computer-aided drafting (CAD) system for future ease of use and revision. This computerized plan set provides detailed information of existing and future facility layout on multiple layers that permits the user to focus in on any section of the airport at a desirable scale. The plan can be used as base information for design, and can be easily updated in the future to reflect new development and more detail concerning existing conditions (as made available through design surveys). The airport layout plan set is submitted to the FAA for approval and must reflect all future development for which federal funding is anticipated, otherwise, the proposed development will not be eligible for federal funding. Updating these drawings to reflect changes in existing and ultimate facilities is essential.

AIRPORT LAYOUT PLAN

The **Airport Layout Plan (ALP)** shown on **Sheet 2**, and its corresponding **Data Sheet** (**Sheet 1**), graphically presents the existing and ultimate airport layout. Detailed airport and runway data are provided to facilitate the interpretation of the

Master Plan recommendations. Both airfield and landside improvements are illustrated.

TERMINAL AREA PLAN

The **Terminal Area Plan (Sheet 3)** provides greater detail concerning landside improvements and at a larger scale than the ALP. The Terminal Area Plan includes details concerning landside development within the existing civilian use area north of Runway 8-26.

AIRSPACE PLANS

The five drawings **(Sheets 4 through 8)** comprising the airspace plans for Sierra Vista Municipal Airport/Libby Army Airfield present varying levels of detail regarding the airspace associated with the Airport. These drawings include the **F.A.R. Part 77 Airspace Plan, Airspace Inner Surfaces Plan, Approach Zones Profiles, and Clear Zones Plans**. Each of these drawings is described in greater detail in the following sections.

AIRSPACE PLAN AND AIRSPACE INNER SURFACES PLAN

Sheet 4, F.A.R. Part 77 Airspace Plan, and **Sheet 5, F.A.R. Part 77 Airspace Inner Surfaces Plan** illustrate the imaginary surfaces as specified in both the military's *Airfield and Heliport Planning and Design* and *Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace.* These specifications were established to protect the airspace surrounding the Airport and the approaches to each runway end from hazards that could affect the safe and efficient operation of aircraft arriving and departing Sierra Vista Municipal Airport/Libby Army Airfield. As a joint use facility, under the jurisdiction of the U.S. Army, military design standards covering Class A and B runways take precedence over any civilian standards set forth by the FAA. The Airspace Plan is a tool to aid local authorities in controlling the height of objects near the Airport, and determining if proposed development could present a hazard to the Airport and obstruct the approach path to a runway end. The obstructions shown on **Sheet 5** were derived from the National Oceanic and Atmospheric Administration's (NOAA) *2000 Airport Obstruction Chart (OC 5081)* for Sierra Vista Municipal Airport/Libby Army Airfield.

Airspace Imaginary Surfaces

The Airspace Plan assigns three-dimensional imaginary areas to each runway. These imaginary surfaces emanate from the runway centerline and are based on aircraft intended to utilize the runway. The military-defined airspace imaginary surfaces include the runway lateral clearance zone (or primary surface), approach-departure clearance surface (both slope and horizontal), inner horizontal surface, conical surface, outer horizontal surface, transitional surface, and runway clear zones. FAA Part 77 imaginary surfaces include the primary, approach, transitional, horizontal and

conical surfaces. As indicated by the names, the definitions of several of these surfaces are the same for both military and civilian purposes. The applicable airspace imaginary surfaces for Sierra Vista Municipal Airport/ Libby Army Airfield are described in the following paragraphs.

Runway Lateral Clearance Zone (Primary Surface). The runway lateral clearance zone is an imaginary surface longitudinally centered on the runway. This surface extends 200 feet beyond each runway end. The elevation of any point on the runway lateral clearance zone surface is the same as the elevation along the nearest associated point on the runway centerline. Under military regulations, the runway lateral clearance zone surface widths for both Class A and Class B runways (at Army airfields) are 1,000 feet. **Sheet 5, Airspace Inner Surfaces Plan** indicates several obstructions to the runway lateral clearance zone surface at the Airport. An FAA Aeronautical Study should be requested to examine the effects of these penetrations.

Approach/Departure Clearance Surface. The approach/departure clearance surface for each runway is intended to protect the safety of aircraft arriving and departing the Airport and prohibit the growth of natural objects or the construction of objects which could present an obstruction to approach and departure paths located at each runway end. The approach/departure clearance surfaces for Class A and B instrument flight rules (IFR) runways consist of two segments while Class A visual flight rules (VFR) runways have only one segment.

For Runway 8-26, a Class B IFR runway, the first segment (slope) begins at the end of the primary surface (200 feet from the runway end) and extends upward and outward, centered along an extended runway centerline. The existing approach/departure clearance surface (slope) for each end of Runway 8-26 extends 25,000 feet from the end of the primary surface at an upward slope of 50 to 1 to a width of 9,000 feet and an elevation of 500 feet (above runway centerline elevation at runway threshold) where it meets the second segment of the approach/departure clearance surface. The second segment, known as the approach/departure clearance surface (horizontal), has no slope and continues an additional 25,000 feet and terminates at a width of 16,000 feet.

Runway 12-30 is a Class A IFR runway, and its first segment of the approach/departure clearance surface (slope) extends outward 20,000 feet and upward from the primary surface at a slope of 40:1 to an elevation 500 feet above the runway threshold elevation. The width of this segment where it meets the second segment is 7,000 feet. The approach/departure clearance surface (horizontal) begins here maintaining the same width and elevation and continues another 30,000 feet.

The approach/departure clearance surface for Runway 3-21 (Class A, VFR) is made up of one section, the slope section, which extends outward 10,000

feet and upward from the primary surface at a slope of 40:1 to a termination point 250 feet above the runway threshold elevation and a width of 2,500 feet.

The Airspace Plan, as shown on Sheets 4 and 5, provides a planemetric view of each runway's approach/departure surfaces while the **Approach Zones Profiles (Sheet 6)** depict the physical features in the approach/departure surface profile. Several obstructions to the approach/departure surfaces, both natural and man-made, are depicted on these drawings. Again, an FAA Aeronautical Study should be requested to examine the effects of these possible penetrations.

Transitional Surface. Each runway has a transitional surface that begins at the outside edge of the primary surface at the same elevation as the runway. The transitional surface connects the primary surface and approach-departure inner surface to the inner horizontal surface, conical surface, and outer horizontal surface. The surface rises at a slope of seven to one up to a height which is 150 feet above the highest airfield elevation. At that point, the transitional surface is replaced by the inner horizontal surface.

Analyses indicates there may be penetrations of the transitional surfaces at the Airport and, therefore, an FAA Aeronautical Study should be requested to examine the effects of these possible penetrations.

Inner Horizontal Surface. The inner horizontal surface is established at 150 feet above the highest airfield elevation. Having no slope, the inner horizontal surface connects the transitional and approach surfaces to the conical surface at a distance of 7,500 feet from the end of the primary surfaces of each runway.

As with the transitional surface, analysis indicates there may be penetrations of the inner horizontal surfaces, including an area of terrain and vegetation southwest of the airfield. To determine the effects of these penetrations, an FAA Aeronautical Study should be requested.

Conical Surface. The conical surface begins at the outer edge of the inner horizontal surface and continues for an additional 7,000 feet horizontally at a slope of 20 to 1 to where it meets the inner edge of the outer horizontal surface. At this distance, the elevation of the conical surface is 500 feet above the highest airfield elevation.

A large area of terrain and vegetation southwest of the airfield penetrates the conical surface, therefore, an FAA Aeronautical Study should be requested to examine the effects of these possible penetrations.

Outer Horizontal Surface. The outer horizontal surface is a flat plane beginning 500 feet above the highest airfield elevation at the outer edge of the conical surface and extending horizontally outward 30,000 feet. At the time of this publication, there were no known obstructions to this surface.

APPROACH ZONES PROFILES

The **Approach Zones Profiles, Sheet 6,** drawing illustrates that portion of the airspace surrounding Sierra Vista Municipal Airport/Libby Army Airfield which directly relates to each runway end's respective approach surface. Though not as comprehensive as the two previously described airspace plan drawings, this drawing does provide an accurate profile representation of the approach surfaces to each runway end.

Physical features such as topography, roadways, overhead utilities, signs, etc. that are within the vicinity of each runway and which may effect the approach surface are depicted on the Approach Zones Profiles. These profile views facilitate identification of obstructions which lie within areas which should be free of objects and/or which could endanger the safety of aircraft arriving or departing the Airport. As previously discussed, several obstructions to the approach surfaces, both natural and man-made, are depicted on these drawings. Again, an FAA Aeronautical Study should be requested to examine the effects of these possible penetrations.

CLEAR ZONES PLANS

The **Clear Zones Plans** shown on **Sheets 7 and 8** illustrate the plan and profile view of the innermost portion of the approaches to each runway. The military's *Airfield and Heliport Planning and Design* defines a clear zone as *"A surface on the ground or water beginning at the runway end and symmetrical about the runway centerline extended."* The purpose of the clear zone is to provide as clear as area as possible for aircraft takeoffs and landings. The first 1,000 feet (length) of the clear zone is cleared and grubbed of stumps and is to be free of surface irregularities, ditches and ponding areas. For the remainder of the clear zone, permissible facilities, geographical features and land use guidance is provided in the Department of Defense's *Air Installations Compatible Use Zone (AICUZ)* publication. Clear zone length and width dimensions are based on runway class, and are measured along the extended runway centerline beginning at the runway end. Class A clear zone dimensions for Runways 12-30 and 3-21 are 3,000 feet in length by 1,000 feet in width. The Class B clear zone for Runway 8-26 measures 3,000 feet by 3,000 feet.

An examination of **Sheet 8** indicates there may be clear zone obstructions to Runways 12-30 and 3-21, therefore, an FAA Aeronautical Study should be requested to determine the effects of these possible obstructions.

ON-AIRPORT LAND USE/ NOISE PLAN

The **On-Airport Land Use/Noise Plan (Sheet 9)** reflects the recommendations for future land use development within the civilian boundaries (on-airport) of Sierra Vista Municipal Airport/Libby Army Airfield. Both existing and future (20-year forecast) aircraft noise contours are depicted and are used to identify both compatible and non-compatible land uses. Non-compatible land uses within

the 65 to 75 DNL (day-night sound level) contours are based on Federal Aviation Regulation (F.A.R.) Part 150 guidelines.

On-airport land use planning is important for the orderly development and efficient use of limited, available space. In this case, on-airport is defined as all property to which the City of Sierra Vista controls, or plans to control for the purpose of providing a public-use airport. This property includes land which is needed for the development and use of runways, taxiways, aprons, terminal buildings, vehicle access and parking, and revenue support, etc. Two primary considerations in on-airport land use planning include securing those areas essential to the safe and efficient operation of the airport, and determining compatible land uses for the balance of the airport property. For reference, the civilian portion of Sierra Vista Municipal Airport/Libby Army Airfield is surrounded by the Fort Huachuca Military Reservation, and as such, adjoining (off-airport) land uses are subject to and defined by the military.

Several on-airport land use categories have been defined. They include Airfield Operations, Commercial Service Area, General Aviation Area, Aviation Related Revenue Support, and Non-Aviation Revenue Support. These categories are discussed in detail in the following paragraphs.

Airfield Operations

This category encompasses those aviation facilities which are essential to the operation of the airfield. At Sierra Vista Municipal Airport/Libby Army Airfield, this area has been designated for joint-use, supporting both military and civilian use. The joint-use area includes the runways, taxiways, and "runway lateral clearance area" (per DOD planning requirements).

Commercial Service Area

The Commercial Service Area is reserved for aircraft providing scheduled air carrier (regional/ commuter) as well as other large aircraft operators. In order to accommodate larger aircraft, this apron area is or should be constructed to a higher pavement strength.

General Aviation Area

Typically, the general aviation (GA) land use category includes aircraft parking aprons, aircraft storage hangars and tiedowns, Fixed Base Operators (FBO) lease areas, airport operations and maintenance facilities, GA terminal building, and vehicle parking areas. Primarily, the purpose of these sites is to store, service, and support general aviation aircraft and activities. Also, included within this category are the parcels reserved for federal agencies.

Aviation Related Revenue Support

Land uses comprising this category have all been provided runway access via the Airport's taxiway/taxilane system. These areas offer strategic

locations for those businesses which utilize aircraft in their operations, or supply and service aircraft.

Reserved areas within this category include the large aircraft conversion facility and air cargo facility. This land use category as well as the Non-Aviation Related Revenue Support category (see below) provide additional employment opportunities at the Airport and maximizes airport land use with respect to revenue generation. Proceeds from leasing these parcels will be used for airport support and maintenance, which further enables the Airport to be self-sufficient.

Non-Aviation Related Revenue Support

Non-Aviation Related Revenue Support parcels do not have taxiway/taxilane access, therefore, these parcels are best suited for those businesses that do not require direct airfield access yet which may still desire the visibility associated with locating on-airport. Specific business types within this category include assembly and manufacturing and the wastewater treatment facility.

SUMMARY

The Airport Layout Plan Set is designed to assist the City of Sierra Vista and the U.S. Army in making decisions relative to future development and growth at Sierra Vista Municipal Airport. The plan provides for development to satisfy expected Airport needs over the next twenty years and beyond. Flexibility will be a key to future development since activity may not occur exactly as forecast. The plan has considered demands that could be placed upon the Airport even beyond the twenty-year planning period to ensure that the facility is capable of accommodating a variety of circumstances.

The Airspace Plan(s) and the Land Use/Noise Plan drawings should be used as tools to ensure land use compatibility and restriction of the heights of future structures or antennae which could pose a potential hazard to air navigation. The Airport Layout Plan Set also provides the City with options in marketing the assets of the Airport for community development. Following the general recommendations of the plan, the Airport can maintain its long term viability and continue to provide quality air transportation and general aviation services to the region.

SIERRA VISTA MUNICIPAL AIRPORT
and LIBBY ARMY AIRFIELD
AIRPORT MASTER PLAN

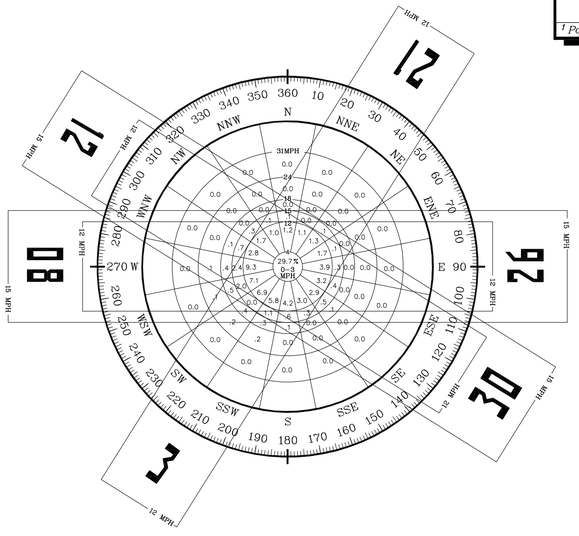
SIERRA VISTA, ARIZONA

AIRPORT LAYOUT PLANS
INDEX OF DRAWINGS

Coffman Associates
Airport Consultants

RUNWAY DATA	RUNWAY 8-26		RUNWAY 12-30		RUNWAY 3-21	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE	EXISTING	ULTIMATE
RUNWAY CATEGORY (ADG)/MILITARY CLASS	E-V/CLASS B	SAME	C-III/CLASS A	SAME	B-II/CLASS A	SAME
RUNWAY AZIMUTH	270.00	SAME	306.796	SAME	216.796	--
RUNWAY BEARING	N90°E	SAME	N53°12'16"W	SAME	S36°47'44"W	SAME
RUNWAY DIMENSIONS	12,000' X 150'	SAME	5,365' X 100'	SAME	4,300' X 75'	SAME
APPROACH VISIBILITY MINIMUMS	+1/2 MILE/+1/2 MILE	SAME	+3/4 MILE/+3/4 MILE	SAME	+1 MILE/+1 MILE	SAME
RUNWAY INSTRUMENTATION	PRECISION/PRECISION	SAME	NONPREC./NONPREC.	SAME	VISUAL/VISUAL	SAME
RUNWAY APPROACH SURFACES	50:1/50:1	SAME	40:1/40:1	SAME	40:1/40:1	SAME
RUNWAY THRESHOLD DISPLACEMENT	NONE	SAME	NONE	SAME	1,289'/NONE	SAME
RUNWAY STOPWAY	NONE	SAME	NONE	SAME	NONE	SAME
RUNWAY SAFETY AREA	14,000' X 580'	SAME	7,365' X 500'	SAME	4,900' X 150'	SAME
RUNWAY OBJECT FREE AREA	14,000' X 800'	SAME	7,365' X 800'	SAME	4,900' X 500'	SAME
TAKEOFF RUN AVAILABLE (TORA)	12,000'/12,000'	SAME	5,365'/5,365'	SAME	SAME	SAME
TAKEOFF DISTANCE AVAILABLE (TODA)	12,000'/12,000'	SAME	5,365'/5,365'	SAME	SAME	SAME
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	12,000'/12,000'	SAME	5,365'/5,365'	SAME	SAME	SAME
LANDING DISTANCE AVAILABLE (LDA)	12,000'/12,000'	SAME	5,365'/5,365'	SAME	SAME	SAME
PAVEMENT MATERIAL	ASPHALT-CONCRETE	SAME	ASPHALT-CONCRETE	SAME	ASPHALT-CONCRETE	SAME
PAVEMENT SURFACE TREATMENT	NONE	SAME	NONE	SAME	NONE	SAME
PAVEMENT STRENGTH REPORT (in thousand lbs.)[1]	75(S),150(D),300(DT),640(DDT)	SAME	46(S),106(D),137(DT),172(DDT)	SAME	UNKNOWN	12.5(S)
RUNWAY EFFECTIVE GRADIENT (in %)	1.0	SAME	<1.0	SAME	2.04	SAME
RUNWAY MARKING	PRECISION/PRECISION	SAME	PRECISION/PRECISION	SAME	VISUAL/VISUAL	SAME
RUNWAY LIGHTING	HIRL	SAME	MIRL	SAME	MIRL	SAME
RUNWAY APPROACH LIGHTING	NONE	SAME	NONE	SAME	NONE	SAME
TAXIWAY LIGHTING	MITL/REFLECTORS	MITL/MITL	MITL/REFLECTORS	SAME	MITL/REFLECTORS	MITL
TAXIWAY MARKING	CENTERLINE/EDGE	SAME	CENTERLINE/EDGE	SAME	CENTERLINE/EDGE	SAME
NAVIGATIONAL VISUAL AIDS	VASI-4 (BOTH) ILS (26), ASR/PAR NDB (26) VOR (26) GPS REIL (BOTH)	PAPI-4 (BOTH) SAME/MALSR SAME SAME GPS. DIFFERENTIAL UNIT	PAPI-4 (BOTH) ASR/PAR REILs -- -- --	SAME SAME SAME GPS -- --	NONE -- -- -- -- --	PAPI-2 REILs -- -- -- --

[1] Pavement strengths are expressed in Single (S), Dual (D), Dual Tandem (DT), and/or Double Dual Tandem (DDT) wheel loading capacities.



SOURCE:
USAFETAC
AIR WEATHER SERVICE
MILITARY AIRLIFT COMMAND
GLOBAL CLIMATOLOGY BRANCH
87,602-OBSERVATIONS
JAN 61-DEC 81

WIND DATA

	12 MPH 10.5 KNT	15 MPH 13 KNT
RUNWAY 08-26	95.78%	96.68%
RUNWAY 03-21	96.45%	N/A
RUNWAY 12-30	96.28%	98.92%
Combined Coverage	99.80%	99.90%

AIRPORT DATA

SIERRA VISTA MUNICIPAL AIRPORT, LIBBY army AIRFIELD (FHU)

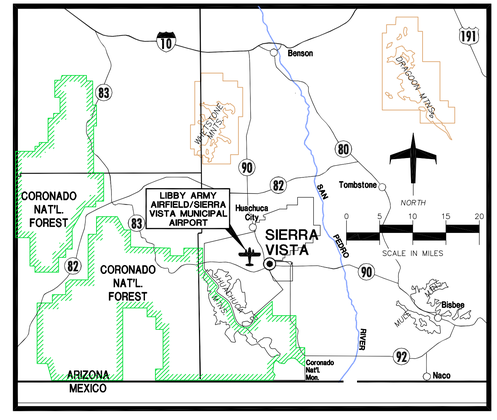
CITY: SIERRA VISTA — COUNTY: COCHISE, ARIZONA

RANGE: R 20E — TOWNSHIP: T 21S — CIVIL TOWNSHIP: N/A

		EXISTING	ULTIMATE
AIRPORT SERVICE LEVEL		COMMERCIAL	SAME
AIRPORT REFERENCE CODE		E-V	SAME
DESIGN AIRCRAFT		CIVILIAN (D-IV) MILITARY (E-V)	SAME SAME
AIRPORT ELEVATION		4719.1' (MSL)	SAME
MEAN MAXIMUM TEMPERATURE OF HOTTEST MONTH		93°F (July)	SAME
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	Latitude	31°35'18.500"N	SAME
	Longitude	110°20'39.800"W	SAME
AIRPORT and TERMINAL NAVIGATIONAL AIDS		ILS (8-26) VOR NDB BEACON ASR/PAR GPS	SAME SAME SAME SAME SAME SAME

RUNWAY END COORDINATES (NAD 83)

RUNWAY 8	Latitude	31° 35' 15.2281"N	SAME
	Longitude	110° 22' 01.3797"W	SAME
RUNWAY 26	Latitude	31° 35' 15.4464"N	SAME
	Longitude	110° 19' 42.6768"W	SAME
RUNWAY 12	Latitude	31° 35' 34.3510"N	SAME
	Longitude	110° 20' 35.7654"W	SAME
RUNWAY 30	Latitude	31° 35' 02.6253"N	SAME
	Longitude	110° 19' 46.0296"W	SAME
RUNWAY 3 (displaced threshold)	Latitude	31° 35' 10.1480"N	SAME
	Longitude	110° 20' 56.2906"W	SAME
RUNWAY 21	Latitude	31° 35' 44.1424"N	SAME
	Longitude	110° 20' 26.7031"W	SAME



LOCATION MAP

DEVIATIONS FROM FAA AIRPORT DESIGN STANDARDS

DEVIATION DESCRIPTION	EFFECTED DESIGN STANDARD	STANDARD	EXISTING	PROPOSED DISPOSITION
-	-	-	-	-

No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2002	--	--

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY ARMY AIRFIELD

DATA SHEET

SIERRA VISTA, ARIZONA

PLANNED BY: Kathryn W. May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris, P.E.

June 28, 2002 — SHEET 1 OF 9

Coffman Associates
Airport Consultants

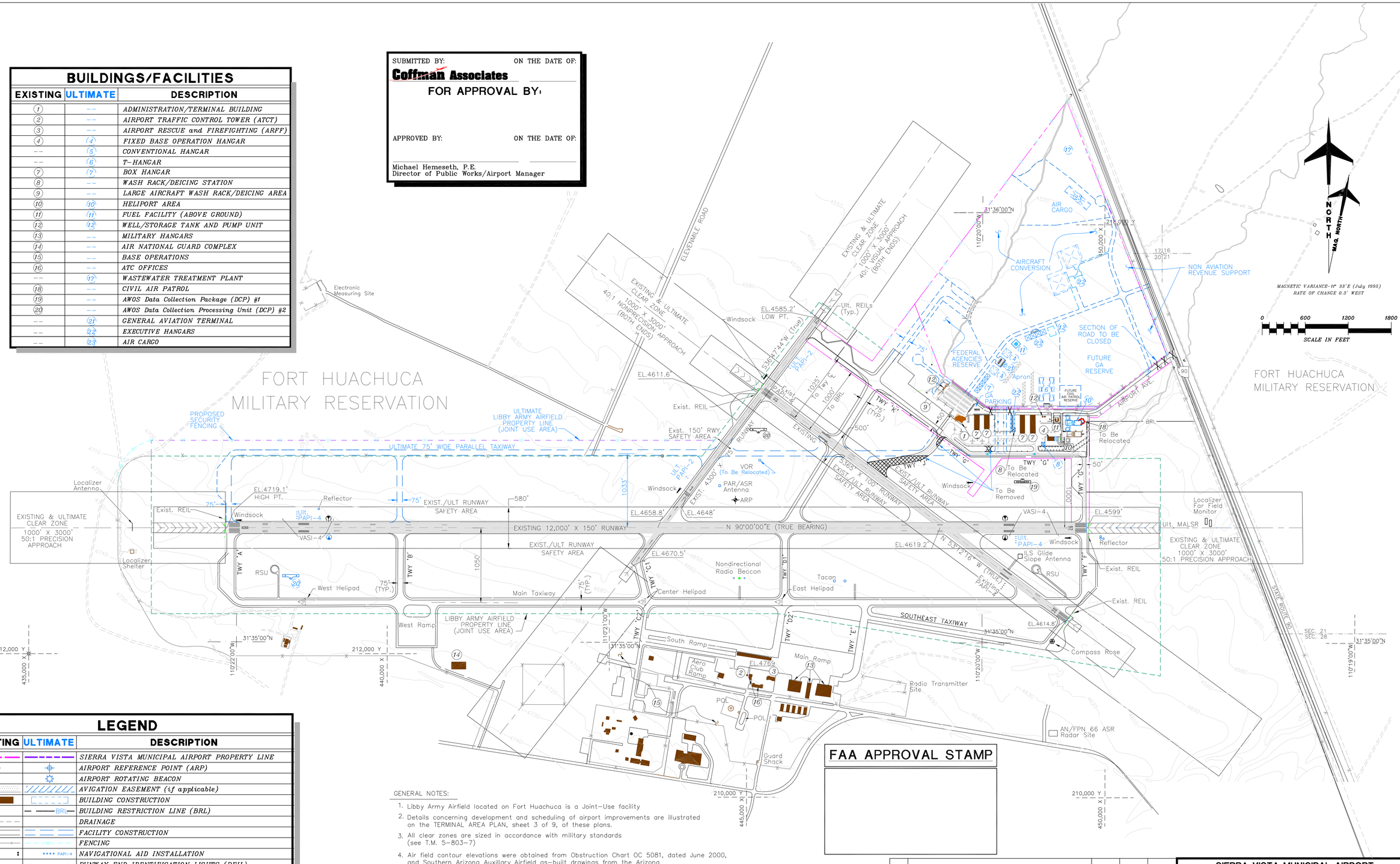
BUILDINGS/FACILITIES		
EXISTING	ULTIMATE	DESCRIPTION
(1)	--	ADMINISTRATION/TERMINAL BUILDING
(2)	--	AIRPORT TRAFFIC CONTROL TOWER (ATCT)
(3)	--	AIRPORT RESCUE and FIREFIGHTING (ARFF)
(4)	(4)	FIXED BASE OPERATION HANGAR
--	(5)	CONVENTIONAL HANGAR
--	(6)	T-HANGAR
(7)	(7)	BOX HANGAR
(8)	--	WASH RACK/DEICING STATION
(9)	--	LARGE AIRCRAFT WASH RACK/DEICING AREA
(10)	(10)	HELIPORT AREA
(11)	(11)	FUEL FACILITY (ABOVE GROUND)
(12)	(12)	WELL/STORAGE TANK AND PUMP UNIT
(13)	--	MILITARY HANGARS
(14)	--	AIR NATIONAL GUARD COMPLEX
(15)	--	BASE OPERATIONS
(16)	--	ATC OFFICES
--	(17)	WASTEWATER TREATMENT PLANT
(18)	--	CIVIL AIR PATROL
(19)	--	AWOS Data Collection Package (DCP) #1
(20)	--	AWOS Data Collection Processing Unit (DCP) #2
--	(21)	GENERAL AVIATION TERMINAL
--	(22)	EXECUTIVE HANGARS
--	(23)	AIR CARGO

SUBMITTED BY: Coffman Associates — ON THE DATE OF: _____

FOR APPROVAL BY:

APPROVED BY: _____ — ON THE DATE OF: _____

Michael Hemeseth, P.E.
Director of Public Works/Airport Manager



LEGEND		
EXISTING	ULTIMATE	DESCRIPTION
		SIERRA VISTA MUNICIPAL AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING CONSTRUCTION
	BRL	BUILDING RESTRICTION LINE (BRL)
		DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
VASI	PAPI-4	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
34 35 / 3 2		SECTION CORNER
		SEGMENTED CIRCLE/WIND INDICATOR
1080		TOPOGRAPHIC CONTOURS (See Note 5)
		WIND INDICATOR (Lighted)
		GEOGRAPHIC COORDINATES
		ARIZONA STATE GRID COORDINATES(EAST ZONE)
		PARCEL D - JOINT USE RWY/TWY AREA

FAA APPROVAL STAMP

GENERAL NOTES:

1. Libby Army Airfield located on Fort Huachuca is a Joint-Use facility
2. Details concerning development and scheduling of airport improvements are illustrated on the TERMINAL AREA PLAN, sheet 3 of 9, of these plans.
3. All clear zones are sized in accordance with military standards (see T.M. 5-803-7)
4. Air field contour elevations were obtained from Obstruction Chart OC 5081, dated June 2000, and Southern Arizona Auxillary Airfield as-built drawings from the Arizona Air National Guard, Tucson, Arizona, dated Dec 31, 1985. Recommend that a field survey be conducted to determine actual airfield elevations before any new construction is attempted.
5. Refer to Fort Huachuca General Site Plans 2 and 3 for a description of the Facilities/Buildings on Libby Army Airfield.
6. All existing taxiways are paved.
7. All Clear Zones are located within the boundaries of the Fort Huachuca Military Reservation.
8. Civilian aircraft parking aprons and ramp space are limited to the areas within Sierra Vista Municipal Airport Property Line boundary, while military aircraft parking areas and ramp space are confined to the area south of the Libby Army Airfield Property Line (Joint Use Area).

No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2000	--	--

THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY ARMY AIRFIELD

AIRPORT LAYOUT PLAN

SIERRA VISTA, ARIZONA

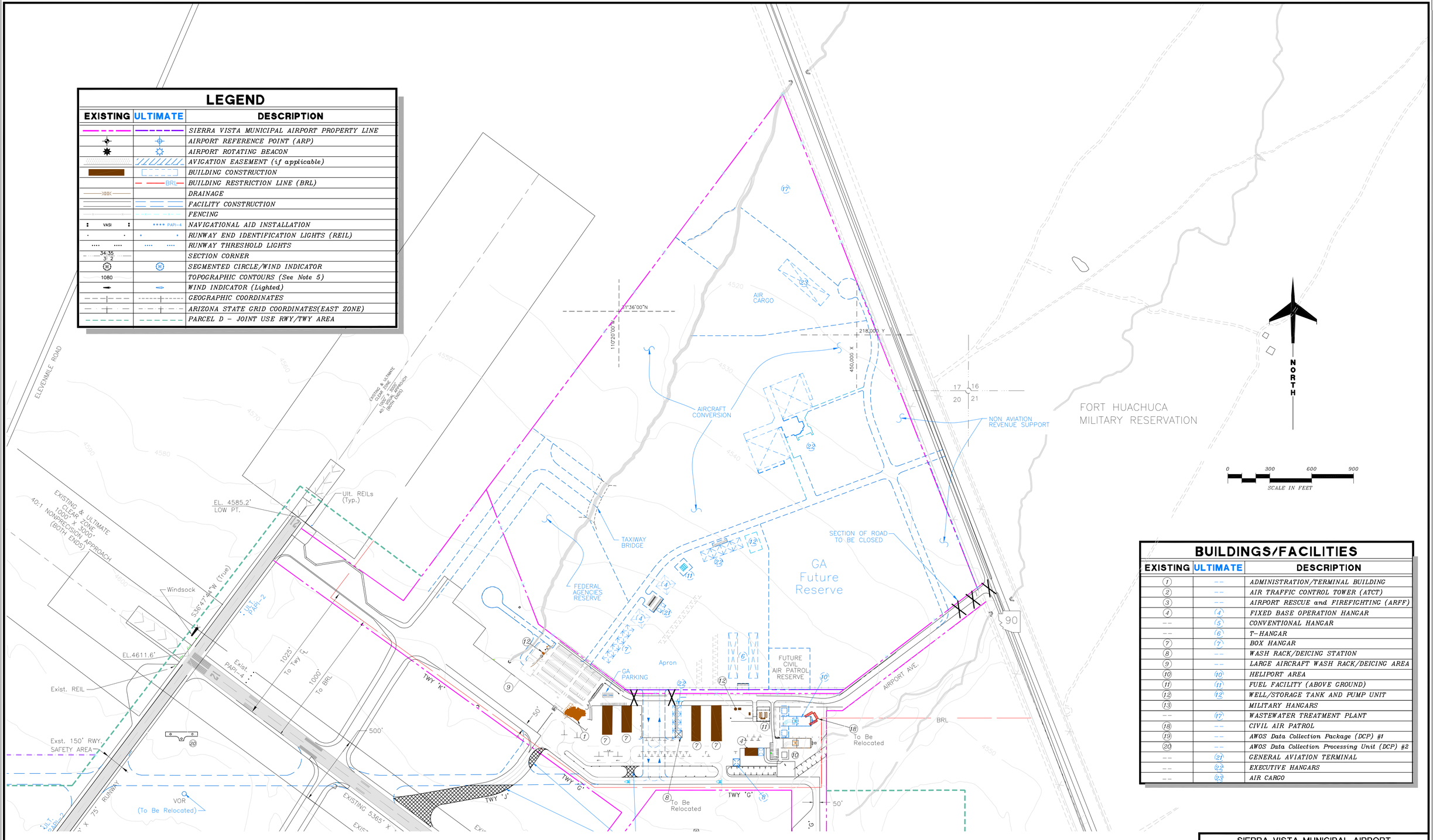
PLANNED BY: Kathryn W. May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris P.E.
June 28, 2002 — SHEET 2 OF 9

Coffman Associates — Airport Consultants

Coffman Associates S:\ALP\2WG 06/28/2002

LEGEND

EXISTING	ULTIMATE	DESCRIPTION
		SIERRA VISTA MUNICIPAL AIRPORT PROPERTY LINE
		AIRPORT REFERENCE POINT (ARP)
		AIRPORT ROTATING BEACON
		AVIGATION EASEMENT (if applicable)
		BUILDING CONSTRUCTION
	BRL	BUILDING RESTRICTION LINE (BRL)
		DRAINAGE
		FACILITY CONSTRUCTION
		FENCING
VASI	PAPI-4	NAVIGATIONAL AID INSTALLATION
		RUNWAY END IDENTIFICATION LIGHTS (REIL)
		RUNWAY THRESHOLD LIGHTS
34 35 3 2		SECTION CORNER
		SEGMENTED CIRCLE/WIND INDICATOR
1080		TOPOGRAPHIC CONTOURS (See Note 5)
		WIND INDICATOR (Lighted)
		GEOGRAPHIC COORDINATES
		ARIZONA STATE GRID COORDINATES(EAST ZONE)
		PARCEL D - JOINT USE RWY/TWY AREA



BUILDINGS/FACILITIES

EXISTING	ULTIMATE	DESCRIPTION
(1)	--	ADMINISTRATION/TERMINAL BUILDING
(2)	--	AIR TRAFFIC CONTROL TOWER (ATCT)
(3)	--	AIRPORT RESCUE and FIREFIGHTING (ARFF)
(4)	(4)	FIXED BASE OPERATION HANGAR
--	(5)	CONVENTIONAL HANGAR
--	(6)	T-HANGAR
(7)	(7)	BOX HANGAR
(8)	--	WASH RACK/DEICING STATION
(9)	--	LARGE AIRCRAFT WASH RACK/DEICING AREA
(10)	(10)	HELIPORT AREA
(11)	(11)	FUEL FACILITY (ABOVE GROUND)
(12)	(12)	WELL/STORAGE TANK AND PUMP UNIT
(13)		MILITARY HANGARS
--	(17)	WASTEWATER TREATMENT PLANT
(18)	--	CIVIL AIR PATROL
(19)	--	AWOS Data Collection Package (DCP) #1
(20)	--	AWOS Data Collection Processing Unit (DCP) #2
--	(21)	GENERAL AVIATION TERMINAL
--	(22)	EXECUTIVE HANGARS
--	(23)	AIR CARGO

No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2000	--	--

"THE PREPARATION OF THESE DOCUMENTS WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982, AS AMENDED. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THESE DOCUMENTS BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY ARMY AIRFIELD

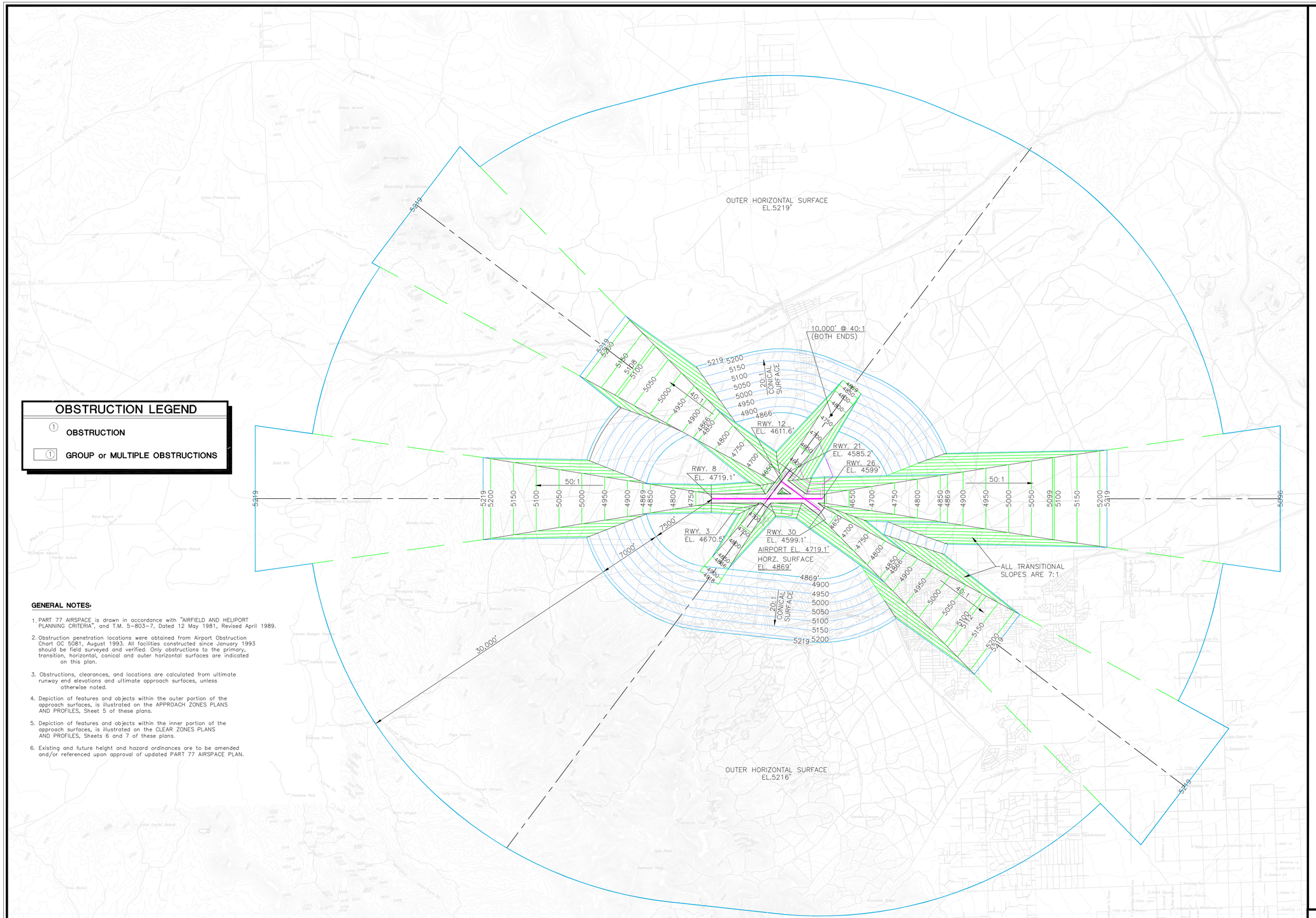
TERMINAL AREA PLAN

SIERRA VISTA, ARIZONA

PLANNED BY: Kathryn W. May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris, P.E.

June 28, 2002

Coffman Associates
Airport Consultants



OBSTRUCTION LEGEND

① OBSTRUCTION

① GROUP or MULTIPLE OBSTRUCTIONS

GENERAL NOTES:

1. PART 77 AIRSPACE is drawn in accordance with "AIRFIELD AND HELIPORT PLANNING CRITERIA", and T.M. 5-803-7, Dated 12 May 1981, Revised April 1989.
2. Obstruction penetration locations were obtained from Airport Obstruction Chart OC 5081, August 1993. All facilities constructed since January 1993 should be field surveyed and verified. Only obstructions to the primary, transition, horizontal, conical and outer horizontal surfaces are indicated on this plan.
3. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
4. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONES PLANS AND PROFILES, Sheet 5 of these plans.
5. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the CLEAR ZONES PLANS AND PROFILES, Sheets 6 and 7 of these plans.
6. Existing and future height and hazard ordinances are to be amended and/or referenced upon approval of updated PART 77 AIRSPACE PLAN.

NORTH
MAG. NORTH

MAGNETIC VARIANCE-11° 33'E (July 1995)
RATE OF CHANGE 0.3' WEST

0 5000 10000 15000

SCALE IN FEET

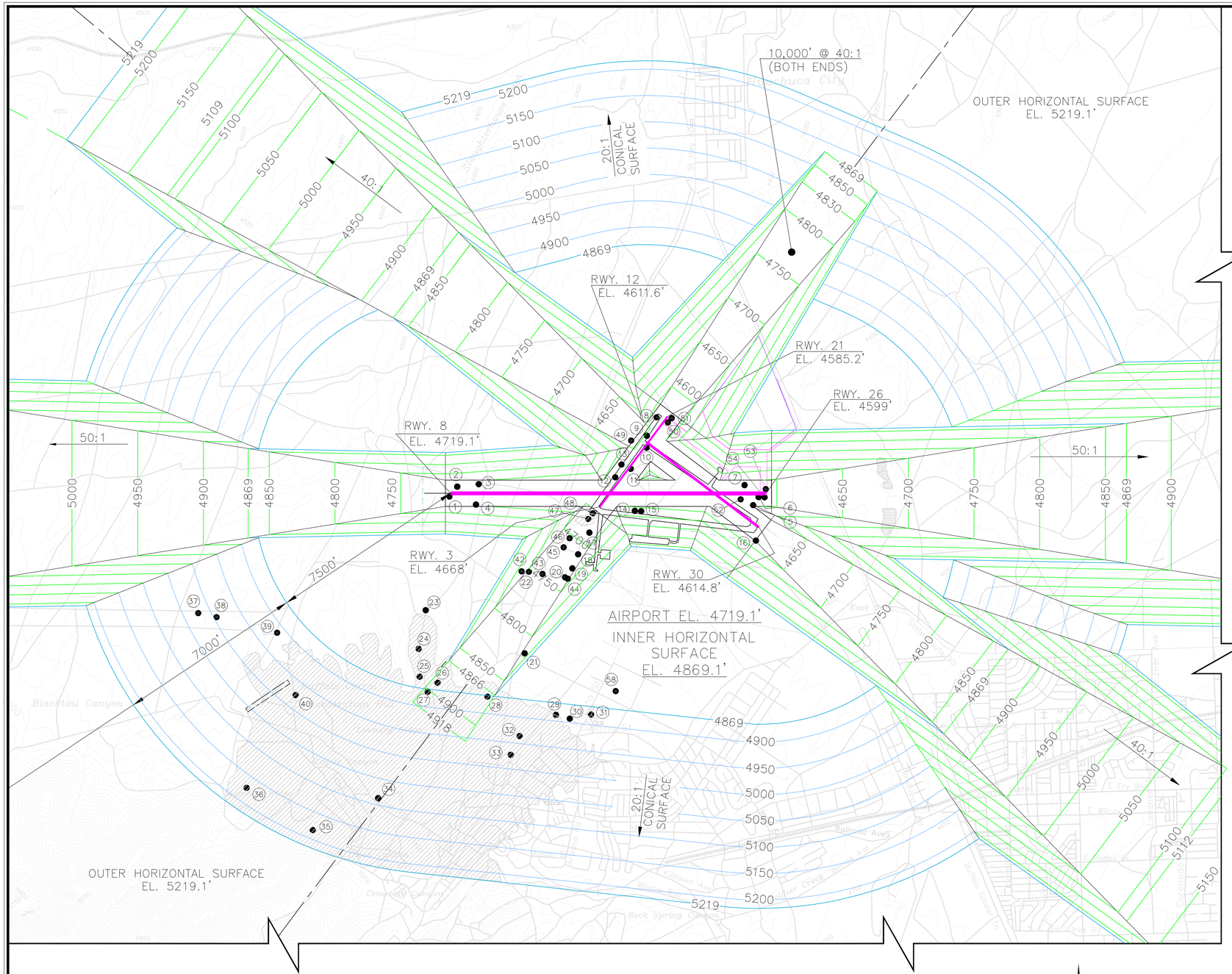
No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2000	–	–

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY army AIRFIELD
F.A.R. PART 77
AIRSPACE PLAN
SIERRA VISTA, ARIZONA

PLANNED BY: Kathryn W. May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris P.E.
June 28, 2002
SHEET 4 OF 9

Coffman Associates
Airport Consultants

Coffman Associates svpar77.DWG 06/28/2002



OBSTRUCTION LEGEND

- ① OBSTRUCTION
- ① GROUP or MULTIPLE OBSTRUCTIONS

GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONES PLANS AND PROFILES, Sheet 5 of these plans.
3. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the CLEAR ZONES PLANS AND PROFILES, Sheets 6 and 7 of these plans.

0 2000 4000 6000
SCALE IN FEET

NORTH
MAG. NORTH

MAGNETIC VARIANCE-11° 33'E (July 1995)
RATE OF CHANGE 0.3' WEST

OBSTRUCTION TABLE

Description	Elevation (MSL)	Obstruction	Recommendation
1. REFLECTOR	4730'	UP TO 11' TO THE PRIMARY SURFACE.	REQUEST FAA AERONAUTICAL STUDY
2. REFLECTOR	4723'	UP TO 19' TO THE PRIMARY SURFACE.	
3. BUSH	4722'	UP TO 1' TO THE PRIMARY SURFACE.	
4. ANTENNA	4727'	UP TO 17' TO THE PRIMARY SURFACE.	
5. ANEMOMETER	4618'	UP TO 3' TO THE PRIMARY SURFACE.	
6. WINDSOCK	4616'	UP TO 16' TO THE PRIMARY SURFACE.	
7. REFLECTOR	4610'	UP TO 6' TO THE PRIMARY SURFACE.	
8. TREE	4595'	UP TO 12' TO THE PRIMARY SURFACE.	
9. WINDSOCK	4624'	UP TO 24' TO THE PRIMARY SURFACE.	
10. SIGN	4615'	UP TO 15' TO THE PRIMARY SURFACE.	
11. SIGN	4635'	UP TO 1' TO THE PRIMARY SURFACE.	
12. WINDSOCK	4664'	UP TO 20' TO THE PRIMARY SURFACE.	
13. BUSH	4639'	UP TO 10' TO THE PRIMARY SURFACE.	
14. NDB POLE(OL)	4697'	UP TO 35' TO THE PRIMARY SURFACE.	
15. NDB POLE(OL)	4696'	UP TO 40' TO THE PRIMARY SURFACE.	
16. REFLECTOR	4618'	UP TO 6' TO THE APPROACH SURFACE	
17. TREE	4705'	UP TO 19' TO THE APPROACH SURFACE	
18. TREE	4732'	UP TO 23' TO THE APPROACH SURFACE	
19. TREE	4748'	UP TO 25' TO THE APPROACH SURFACE	
20. POLE	4770'	UP TO 36' TO THE APPROACH SURFACE	
21. POLE	4861'	UP TO 22' TO THE TRANSITION SURFACE	
22. POLE	4780'	UP TO 30' TO THE APPROACH SURFACE	
23. ANTENNA	4903'	UP TO 37' TO THE INNER HORIZONTAL SURFACE	
24. ANTENNA	4968'	UP TO 102' TO THE INNER HORIZONTAL SURFACE	
25. POLE	4997'	UP TO 131' TO THE INNER HORIZONTAL SURFACE	
26. POLE	5003'	UP TO 137' TO THE INNER HORIZONTAL SURFACE	
27. ANTENNA	5018'	UP TO 147' TO THE CONICAL SURFACE	
28. POLE	4958'	UP TO 89' TO THE CONICAL SURFACE	
29. POLE	4939'	UP TO 49' TO THE CONICAL SURFACE	
30. ROD	4934'	UP TO 39' TO THE CONICAL SURFACE	
31. ROD (OL)	4911'	UP TO 27' TO THE CONICAL SURFACE	
32. POLE	4963'	UP TO 26' TO THE CONICAL SURFACE	
33. POLE	4986'	UP TO 12' TO THE CONICAL SURFACE	
34. TREE	5165'	UP TO 72' TO THE CONICAL SURFACE	
35. TREE	5420'	UP TO 237' TO THE CONICAL SURFACE	
36. TREE	5320'	UP TO 148' TO THE CONICAL SURFACE	
37. POLE	4942'	UP TO 20' TO THE CONICAL SURFACE	
38. POLE	4919'	UP TO 76' TO THE CONICAL SURFACE	
39. POLE	4951'	UP TO 37' TO THE CONICAL SURFACE	
40. POLE	4996'	UP TO 21' TO THE CONICAL SURFACE	
41. TREE	5313'	UP TO 130' TO THE CONICAL SURFACE	
42. POLE	4797'	UP TO 29' TO THE TRANSITION SURFACE	
43. POLE	4789'	UP TO 45' TO THE APPROACH SURFACE	
44. POLE	4782'	UP TO 46' TO THE TRANSITION SURFACE	
45. TREE	4731'	UP TO 19' TO THE APPROACH SURFACE	
46. TREE	4722'	UP TO 20' TO THE APPROACH SURFACE	
47. GROUND	4683'	UP TO 7' TO THE APPROACH SURFACE	
48. GROUND	4672'	UP TO 2' TO THE APPROACH SURFACE	
49. BUSH	4621'	UP TO 5' TO THE APPROACH SURFACE	
50. BUSH	4593'	UP TO 13' TO THE PRIMARY SURFACE	
51. TREE	4592'	UP TO 12' TO THE PRIMARY SURFACE	
52. REFLECTOR	4616'	UP TO 10' TO THE PRIMARY SURFACE	
53. REFLECTOR	4598'	UP TO 2' TO THE PRIMARY SURFACE	
54. REFLECTOR	4600'	UP TO 4' TO THE PRIMARY SURFACE	REQUEST FAA AERONAUTICAL STUDY

No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2000	--	--

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY army AIRFIELD

F.A.R. PART 77 AIRSPACE INNER SURFACES PLAN

SIERRA VISTA, ARIZONA

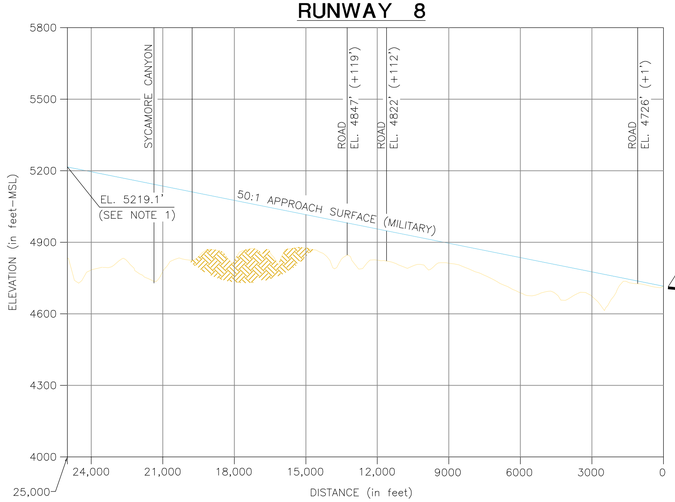
PLANNED BY: Kathryn W. May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris
June 28, 2002

SHEET 5 OF 9

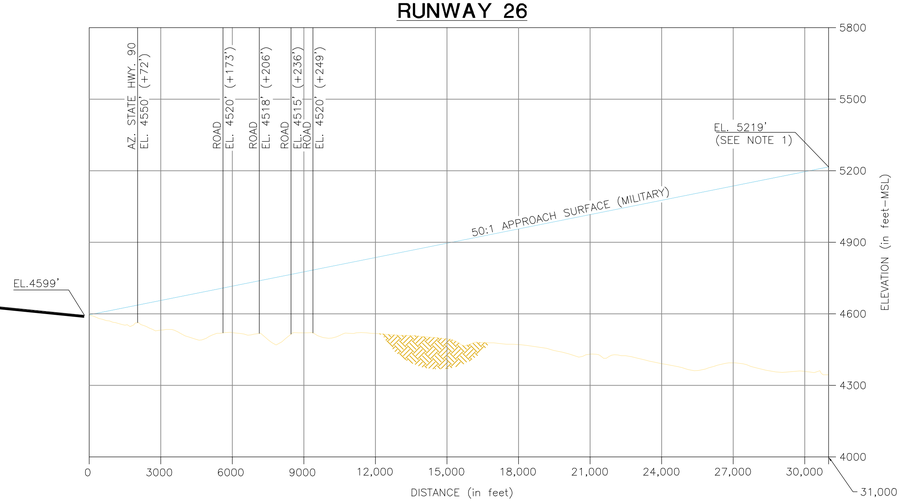
Coffman Associates
Airport Consultants

Coffman Associates Style77-1a.DWG 06/28/2002

RUNWAY 8

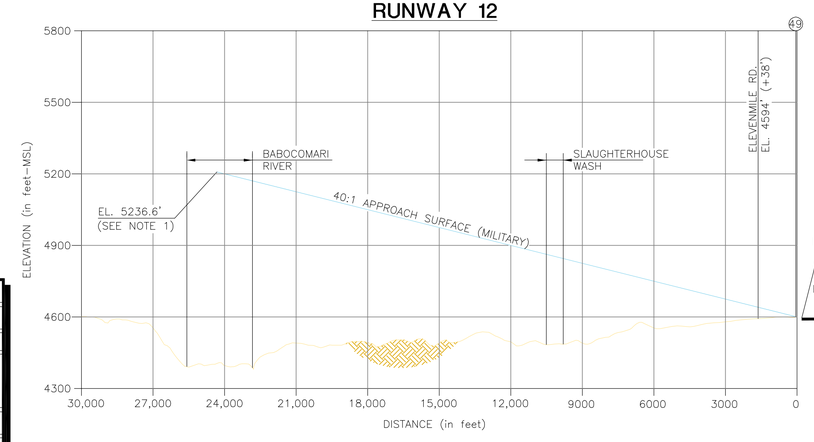


RUNWAY 26

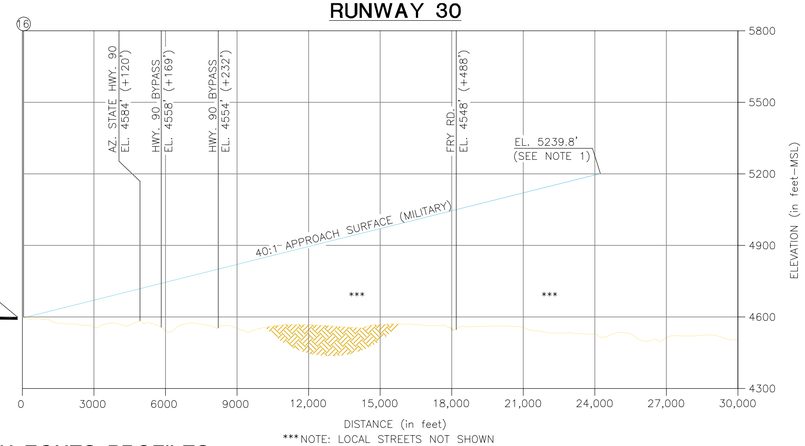


RUNWAY 8-26 APPROACH ZONES PROFILES

RUNWAY 12



RUNWAY 30



RUNWAY 12-30 APPROACH ZONES PROFILES

***NOTE: LOCAL STREETS NOT SHOWN

OBSTRUCTION TABLE

APPROACH ZONE RUNWAY 12

Description	Elevation (MSL)	Obstruction	Recommendation
49. BUSH	4621'	UP TO 5' TO THE APPROACH SURFACE	REQUEST FAA AERONAUTICAL STUDY

APPROACH ZONE RUNWAY 3

Description	Elevation (MSL)	Obstruction	Recommendation
17. TREE	4705'	UP TO 19' TO THE APPROACH SURFACE	REQUEST FAA AERONAUTICAL STUDY
18. TREE	4732'	UP TO 23' TO THE APPROACH SURFACE	
19. TREE	4748'	UP TO 25' TO THE APPROACH SURFACE	
20. POLE	4770'	UP TO 36' TO THE APPROACH SURFACE	
22. POLE	4780'	UP TO 30' TO THE APPROACH SURFACE	
45. TREE	4731'	UP TO 19' TO THE APPROACH SURFACE	
46. TREE	4722'	UP TO 20' TO THE APPROACH SURFACE	
47. GROUND	4683'	UP TO 7' TO THE APPROACH SURFACE	
48. GROUND	4672'	UP TO 2' TO THE APPROACH SURFACE	

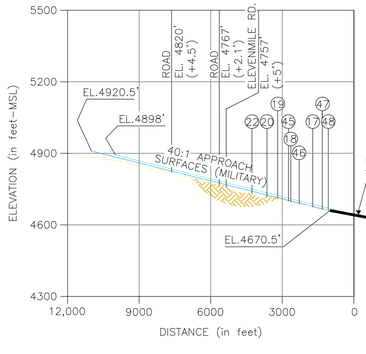
APPROACH ZONE RUNWAY 30

Description	Elevation (MSL)	Obstruction	Recommendation
16. REFLECTOR	4618'	UP TO 6' TO THE APPROACH SURFACE	REQUEST FAA AERONAUTICAL STUDY

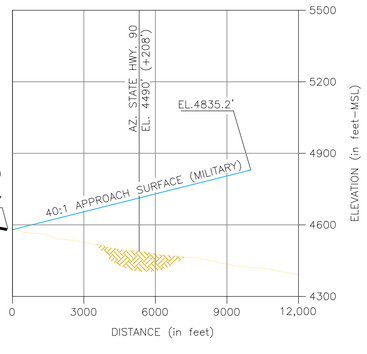
GENERAL NOTES:

1. The Outer Horizontal Surface (not shown) begins at this point and continues horizontally to a point 50,000 feet from the point of beginning of the approach surface. This applies to Runways 8–26 and 12–30 only.
2. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
3. Depiction of features and objects within the primary, transitional, and horizontal surfaces, is illustrated on the AIRSPACE PLAN, sheets 4 and 5 of these plans.
4. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the CLEAR ZONES PLAN, sheets 7 and 8 of these plans.

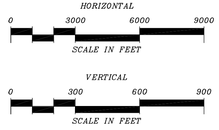
RUNWAY 3



RUNWAY 21



RUNWAY 3-21 APPROACH ZONES PROFILES



No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2000	---	---

"THE CONTENTS OF THIS PLAN DOES NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS DOCUMENT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED HEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS."

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY army AIRFIELD

APPROACH ZONES PROFILES

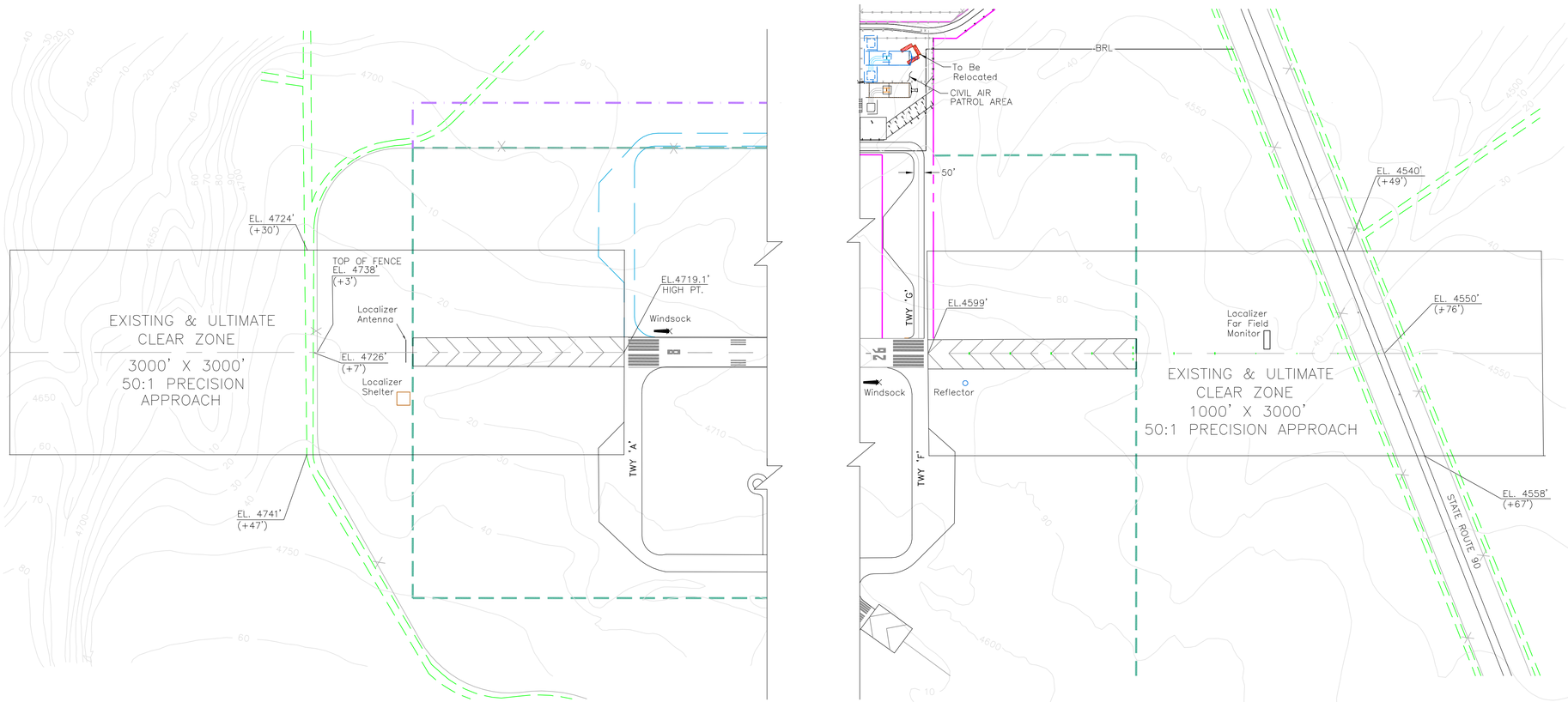
SIERRA VISTA, ARIZONA

PLANNED BY: Kathryn W. May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris P.E.

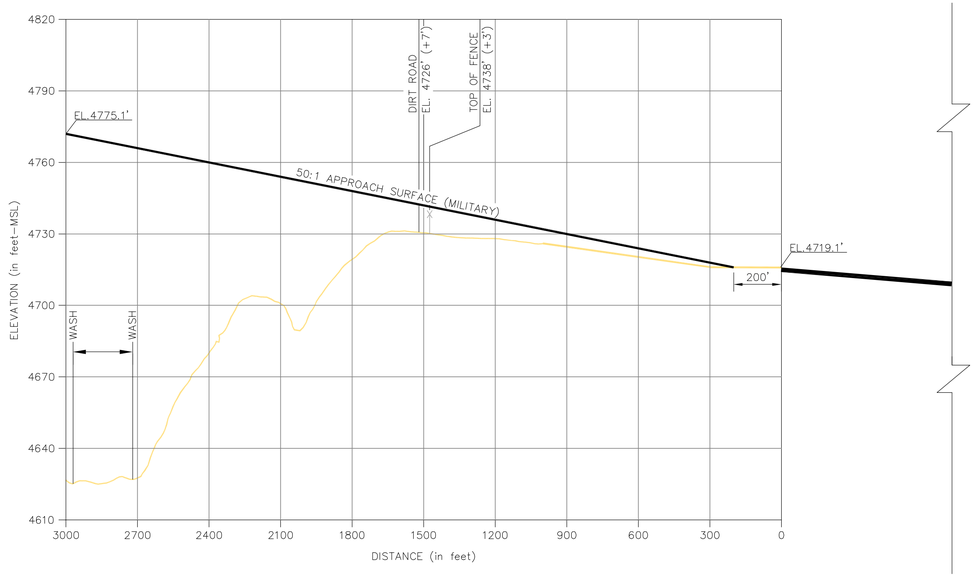
June 28, 2002 | SHEET 6 OF 9

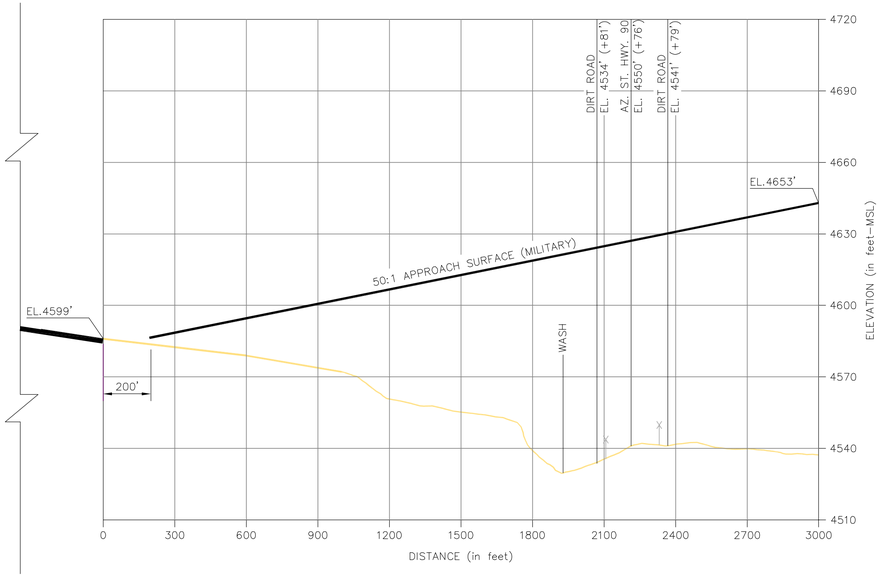
Coffman Associates
Airport Consultants

Coffman Associates SVAP2.DWG 06/28/2002



RUNWAY 8-26 CLEAR ZONES PLANS AND PROFILES





GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway end elevations and ultimate approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the primary, transitional, and horizontal surfaces, is illustrated on the AIRSPACE PLAN, sheets 4 and 5 of these plans.
3. Depiction of features and objects within the outer portion of the approach surfaces, is illustrated on the APPROACH ZONE PROFILES, sheet 6, of these plans.

NORTH

HORIZONTAL
0 300 600 900
SCALE IN FEET

VERTICAL
0 30 60 90
SCALE IN FEET

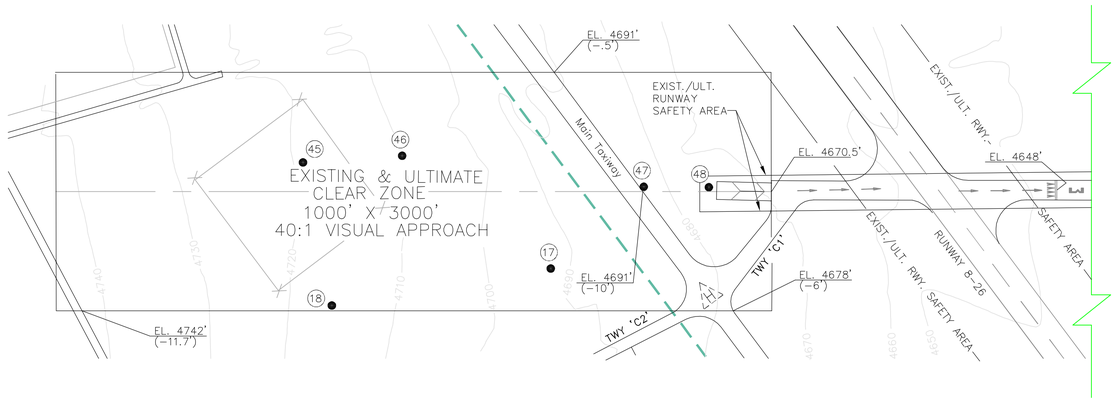
No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2000	--	--

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY ARMY AIRFIELD
CLEAR ZONES PLANS
RUNWAY 8-26
SIERRA VISTA, ARIZONA

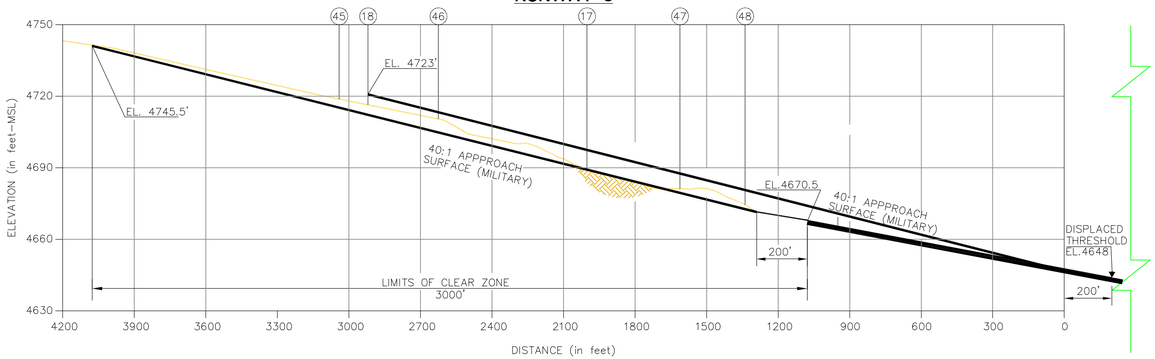
PLANNED BY: Kathryn W. May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris P.E.
June 28, 2002 SHEET 7 OF 9

Coffman Associates
Airport Consultants

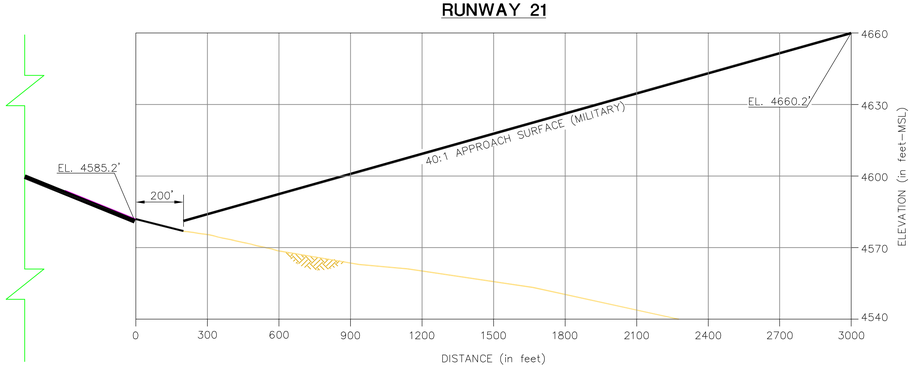
Coffman Associates SvCrz1.DWG 06/28/2002



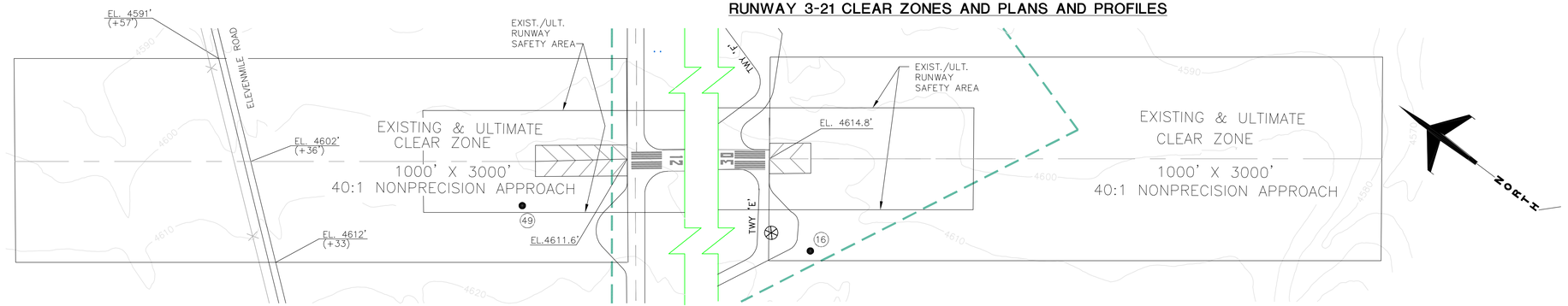
RUNWAY 3



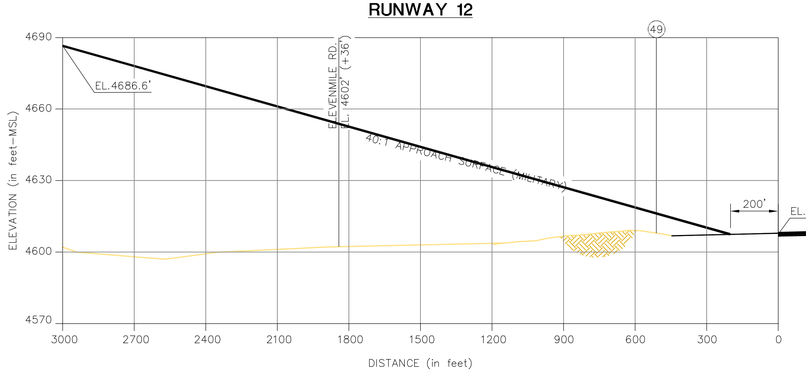
RUNWAY 21



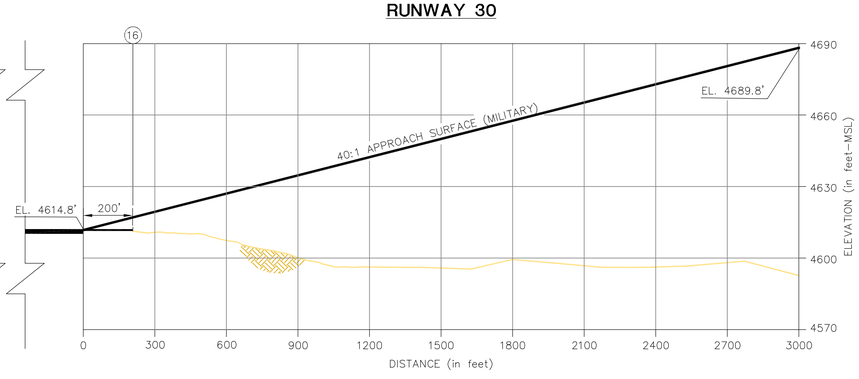
RUNWAY 3-21 CLEAR ZONES AND PLANS AND PROFILES



RUNWAY 12



RUNWAY 30



RUNWAY 12-30 CLEAR ZONES PLANS AND PROFILES

OBSTRUCTION TABLE

CLEAR ZONE RUNWAY 12

Description	Elevation (MSL)	Obstruction	Recommendation
49. BUSH	4621'	UP TO 5' TO THE APPROACH SURFACE	REQUEST FAA AERONAUTICAL STUDY

CLEAR ZONE RUNWAY 3

Description	Elevation (MSL)	Obstruction	Recommendation
18. TREE	4732'	UP TO 23' TO THE APPROACH SURFACE	REQUEST FAA AERONAUTICAL STUDY
45. TREE	4731'	UP TO 19' TO THE APPROACH SURFACE	
46. TREE	4722'	UP TO 20' TO THE APPROACH SURFACE	
48. GROUND	4672'	UP TO 2' TO THE APPROACH SURFACE	

CLEAR ZONE RUNWAY 30

Description	Elevation (MSL)	Obstruction	Recommendation
16. REFLECTOR	4618'	UP TO 6' TO THE APPROACH SURFACE	REQUEST FAA AERONAUTICAL STUDY

LEGEND:

(16) Obstruction

GENERAL NOTES:

1. Obstructions, clearances, and locations are calculated from ultimate runway and elevations and ultimate approach surfaces, unless otherwise noted.
2. Depiction of features and objects within the primary, transitional, and horizontal surfaces, is illustrated on the AIRSPACE PLAN, sheets 4 and 5 of these plans.
3. Depiction of features and objects within the inner portion of the approach surfaces, is illustrated on the CLEAR ZONES PLAN, sheets 7 and 8 of these plans.

HORIZONTAL
0 300 600 900
SCALE IN FEET

VERTICAL
0 30 60 90
SCALE IN FEET

No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2000	--	--

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY ARMY AIRFIELD
CLEAR ZONES PLANS
RUNWAYS 12-30 and 3-21
SIERRA VISTA, ARIZONA

PLANNED BY: Kathryn May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris P.E.
June 28, 2002 SHEET 8 OF 9

Coffman Associates
Airport Consultants

Coffman Associates S2x12.DWG 06/28/2002

ON-AIRPORT LAND USE LEGEND
AIRFIELD OPERATIONS (864 ACRES)
GENERAL AVIATION AREA (84 ACRES)
AVIATION RELATED REVENUE SUPPORT (101 ACRES)
NON-AVIATION REVENUE SUPPORT (10 ACRES)
COMMERCIAL SERVICE AREA (8 ACRES)
FEDERAL AGENCIES, UTILITIES & GOVERNMENT (42 ACRES)
LEGEND
EXISTING AIRPORT PROPERTY LINE
ULTIMATE AIRPORT PROPERTY LINE
LIBBY ARMY AIRFIELD PROPERTY LINE (JOINT USE AREA)
ULTIMATE LIBBY ARMY AIRFIELD PROPERTY LINE (JOINT USE AREA)
FORT HUACHUCA MILITARY RESERVATION
FORT HUACHUCA MILITARY RESERVATION
FORT HUACHUCA MILITARY RESERVATION
Electronic Measuring Site
ELEVENMILE ROAD
ULTIMATE 75' WIDE PARALLEL TAXIWAY
EXISTING 12,000' X 150' RUNWAY
N 90°00'00"E (TRUE BEARING)
EXIST. 4300' X 75' RUNWAY
S36°47'44"W (True)
EXISTING 5365' X 100' RUNWAY
N 53°12'16" W (TRUE)
TWY 'A'
TWY 'B'
TWY 'C1'
TWY 'C2'
TWY 'D1'
TWY 'D2'
TWY 'E'
TWY 'F'
TWY 'G'
Main Taxiway
SOUTHEAST TAXIWAY
West Ramp
South Ramp
Main Ramp
Aero Club Ramp
Guard Shack
LIBBY ARMY AIRFIELD PROPERTY LINE (JOINT USE AREA)
AIRPORT AVE.
STATE ROUTE 90
90
BRL
Ult. MALSR
31°36'00"N
110°20'00"W
218,000 Y
450,000 X
17 16
20 21
31°35'00"N
110°22'00"W
110°21'00"W
110°20'00"W
110°19'00"W
212,000 Y
435,000 X
440,000 X
210,000 Y
445,000 X
450,000 X
SEC. 21
SEC. 28
NORTH
MAG. NORTH
MAGNETIC VARIANCE–11° 33'E (July 1995)
RATE OF CHANGE 0.3' WEST
0 600 1200 1800
SCALE IN FEET
Coffman Associates SvLUP.DWG 06/28/2002

SIERRA VISTA MUNICIPAL AIRPORT
LIBBY ARMY AIRFIELD

LAND USE PLAN

SIERRA VISTA, ARIZONA

PLANNED BY: Kathryn W. May/James M. Harris
DETAILED BY: Maggie Rogers
APPROVED BY: James M. Harris P.E.
June 28, 2002 SHEET 9 OF 9

Coffman Associates Airport Consultants

No.	REVISIONS	DATE	BY	APP'D.
1	ALP REVALIDATION	11/14/2000	--	--